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A delayed foreskin-sparing approach to the management of penile fractures in uncircumcised Jamaican men



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ABSTRACT

INTRODUCTION: The traditional surgical approach to penile fracture is to perform a circumferential subcoronal degloving incision emergently to repair the injury. This approach necessitates circumcision to avoid foreskin complications. We present four men who had a delayed foreskin-sparing approach and discuss its advantages.

PRESENTATION OF CASE: Four of five uncircumcised patients who had suspected penile fractures secondary to coital injury, and without suspicion of concomitant urethral injury, had a delayed exploration, seven days after injury, utilizing an incision directly over the palpable haematoma, at the location of the tunical defect, thereby resulting in foreskin preservation. Two of 5 patients had repair under general anaesthesia, one under local anaesthesia and surgery was cancelled in another because upon reassessment at seven days he had normal erections and a normal penile examination. At follow up, all men had good functional and cosmetic outcomes.

DISCUSSION: Uncircumcised patients with penile fractures, without suspicion of urethral injury, may undergo a delayed repair without prophylactic circumcision since there is minimal risk of foreskin complications. Delayed repair decreases the incidence of negative explorations by fostering a conservative approach in mimicking conditions such as superficial vein lacerations. It also enables the use of local anaesthesia in an elective ambulatory setting.

CONCLUSION: Delayed repair of penile fractures results in foreskin preservation, facilitates elective ambulatory care under local anaesthesia and decreases the incidence of negative explorations.

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1. Introduction

The current standard of care for penile fracture is immediate repair through a circumferential subcoronal degloving incision. This approach necessitates circumcision in uncircumcised men to avoid postoperative foreskin complications. A large proportion of Jamaican men are uncircumcised and seem to prefer to retain their foreskin after surgical repair. We therefore offered a delayed approach in selected cases, surgically exploring the penis directly over the site of tunical injury, thus enabling preservation of the foreskin. This approach also had other beneficial outcomes other than foreskin preservation. We report on the process of care, the

unintended benefits and the outcomes of this foreskin-preserving approach in a series of 5 patients.

2. Case presentation

Utilizing the CARE guidelines [1], we report on five cases of clinically diagnosed penile fracture in uncircumcised men seen at the University Hospital of the West Indies, Jamaica, from July to November 2014 [Table 1]. The ages ranged between 35 and 53 years and all injuries were secondary to coital mishaps. All five patients presented to the emergency room within 24 h and reported a popping sensation in the penis immediately followed by partial detumescence and diffuse penile swelling. One case was deliberately not offered the option of a delayed approach because there was clinical suspicion of urethral injury, evidenced by urinary retention, and he had an immediate subcoronal degloving exploration. The remaining patients were offered the option of immediate repair via a degloving incision with accompanying circumcision or a delayed repair directly over the tunical injury and without circumcision. All four patients opted to have a delayed

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repair, indicating that foreskin preservation was the main reason for their decision. Informed consent was obtained and surgical repairs were performed by two urologists who regularly manage patients with penile fractures.

The four patients with uncomplicated penile fractures were discharged from the emergency room on oral Diclofenac Sodium 50 mg thrice daily to reduce pain and swelling, and advised to refrain from any sexual activity. Seven days after injury, they were reviewed, and a meticulous examination of the penis was done, but the most important clinical finding checked was the presence of the rolling sign as this feature determines the feasibility of a direct localized repair. Upon re-examination, 3 of the 4 cases had complete resolution of the diffuse swelling and the rolling sign was elicited [Fig. 1]. These 3 patients subsequently had localized repair in an ambulatory setting on that same day, 2 under general

anaesthesia and 1 under local anaesthesia using a dorsal penile nerve block as this was the surgeon's preference.

Repair was performed using a 2 cm skin incision over the palpable haematoma, and sharp dissection done through the Dartos fascia and capsule of the haematoma. The clot was evacuated and the apices of the torn Buck's fascia and tunica albuginea were identified. Repair was done using a 3-0 polyglactin suture with a continuous technique.

The fourth patient reported having normal erections, and on examination there was complete resolution of the swelling and no palpable haematoma. An MRI scan of his penis revealed an intact corpus cavernosum and a small discrete subcutaneous soft tissue swelling. A ruptured superficial penile vein was diagnosed which sometimes mimics a penile fracture at initial presentation [2]. Surgery was therefore cancelled.

Table 1
Management of cases.

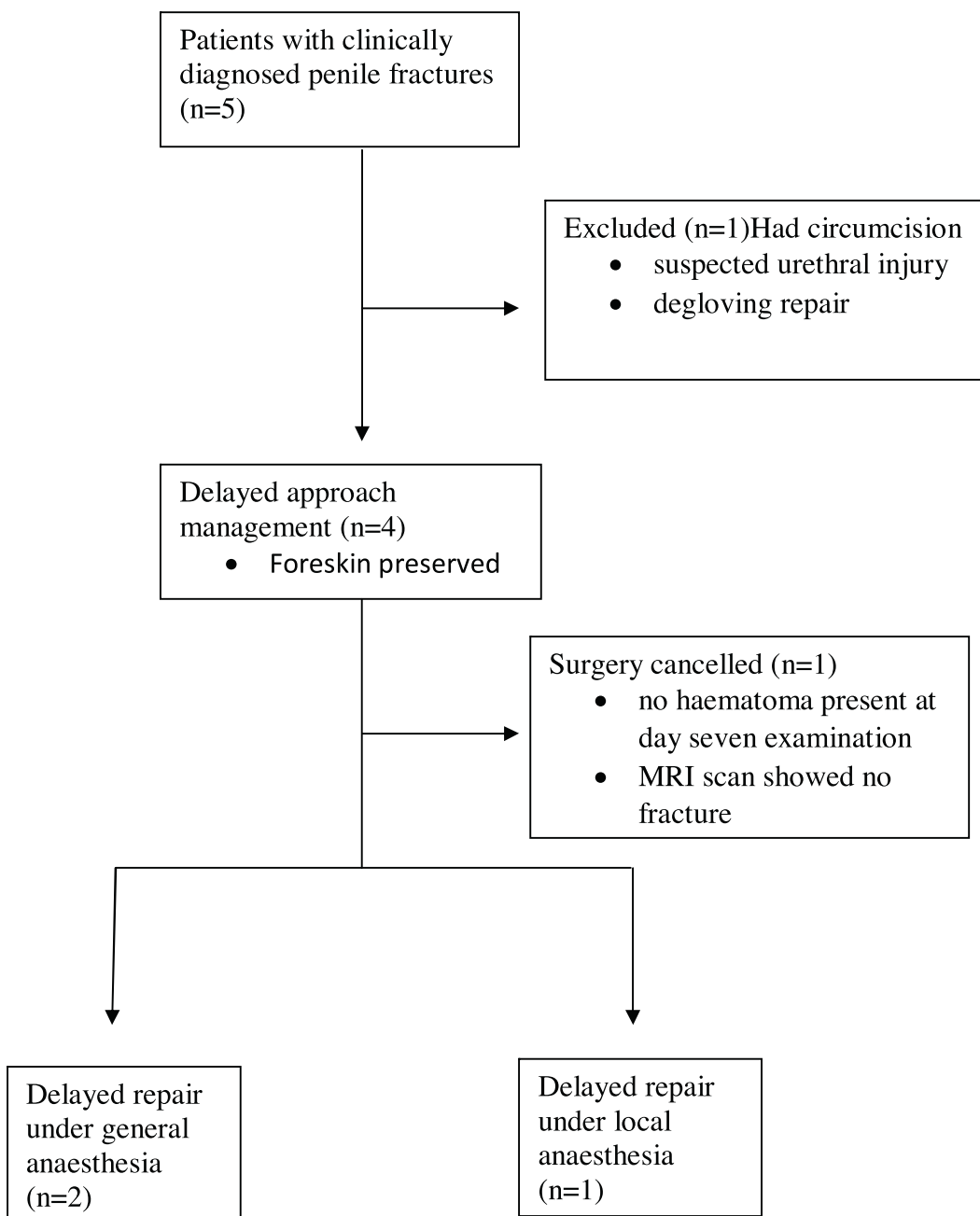




Fig. 1. Localised haematoma at seven days creates the “rolling sign”.

Over a one year follow-up period, we assessed erectile function, pain during intercourse, penile nodule and curvature. One grade 1 Clavien-Dindo complication occurred in the form of a painless nodule at the fracture repair site, but this did not affect erectile function or sexual intercourse. Interestingly, this patient reported straightening of a preoperative ventral congenital penile curvature. All patients were satisfied with good functional and cosmetic outcomes [Fig. 2].

3. Discussion

We successfully preserved foreskin and treated 3 cases of penile fracture with a delayed, localized, non-degloving repair and avoided unnecessary surgery in 1 case, using this approach in appropriately selected patients. Penile fracture is traditionally repaired immediately using a circumferential subcoronal degloving incision with an accompanying circumcision in previously uncircumcised men. When the foreskin is spared during subcoronal degloving procedures, most will require secondary circumcision due to foreskin complications related to compromised blood supply [3]. Routine prophylactic circumcision is therefore usually necessary to avoid chronic postoperative foreskin oedema, phimosis and ischaemia. In a series of 15 patients having a degloving incision for penile fracture, 3 were reported to have skin necrosis [4].

The World Health Organization in 2007 revealed that greater than seventy percent of the global male population is uncircumcised and that there has been a recent 10% decline in non-religious and non-therapeutic circumcisions; in countries such as the USA where routine neonatal circumcision is popular a similar decline has been noted [5]. This is perhaps due to perceived benefits of foreskin preservation, which may include maintenance of erogenous sensitivity, preservation of its sliding motion over the glans penis during sexual intercourse, referred to as “the pleasure dynamic”,



Fig. 2. The same patient with cosmetic outcome at 6-months.

enhanced sexual pleasure and reduced friction due to a gliding mechanism of the prepuce within its own sheath, and provision of moisture and protection of the glans penis [6]. Increased patient demand for foreskin preservation has engendered foreskin-sparing and foreskin-restoration procedures.

In keeping with modern trends, we offered a delayed approach that preserves the foreskin instead of the traditional approach. This delayed, localized, non-degloving repair does not necessitate an accompanying circumcision because the foreskin maintains its vasculature and is therefore at miniscule risk of complications from devascularisation. Moreover, foreskin preservation might minimize changes in glans sensitivity as suggested by Savoca [3].

Eliciting the presence of a fixed haematoma over the fracture site, called a “rolling sign”, is of paramount importance in the delayed localized repair. It is easily palpated between seven to twelve days after the insult when there is resolution of the surrounding swelling [7]. This facilitates an incision directly over the haematoma, which correlates with the site of tunical rupture in the majority of cases because 90% of penile fractures are unilateral on the ventral shaft [Fig. 1]. In instances when the presence of the rolling sign at 7 days is in doubt because of persistent marked penile swelling (perhaps due to an extensive injury), then a standard degloving incision can still be done safely without any increased intraoperative difficulty or postoperative complication [8].

Immediate repair through a peno-scrotal ventral midline raphe incision is also utilised for penile fractures [9] and typically allows foreskin preservation. However, potential problems with the peno-scrotal approach include difficulty identifying the exact fracture site in cases of extensive scrotal or perineal haematoma, and risk of significant extension of the initial incision if the fracture site is located at the distal penis or on the dorsal corporal surface. For these reasons, this technique of exploration is usually done under spinal or general anaesthesia. Though sharing the common advantage of foreskin preservation, the delayed localized repair is thought to be a simpler procedure and can easily be done under local anaesthesia in an elective ambulatory setting.

There is no documented evidence in the literature of an increased risk of erectile dysfunction, acquired penile curvature or plaque formation when a delayed approach is used instead of immediate repair [10]. Indeed, there is no reported adverse outcome that is specific to a delayed penile fracture repair. The penile nodule complication that occurred in this series is not peculiar to the direct localized repair, as the actual suturing of the lacerated tunica is identical whether approached directly in a delayed fashion or by immediately degloving the penis. Development of a penile nodule was reported as the most common complication in a large series in which immediate degloving repair was the primary intervention [10].

Another notable advantage of our delayed approach is that it facilitates a reduction in the incidence of negative penile

explorations as exemplified by our last case. The intentional delay of seven days helps to rule out some of the possible differential diagnoses that may not require surgery, like a ruptured superficial dorsal vein. Appreciation of this concept is important because there is a 16% rate of misdiagnosed penile fracture resulting in unnecessary penile explorations [11]. Although imaging is sometimes useful, current evidence does not support its routine use, as it is not reliable or cost-effective, and may have a false-positive rate of nearly 13% [12].

In conclusion, in selected patients, a delayed approach to the management of penile fractures in uncircumcised men directly results in preservation of the foreskin, allows for ambulatory surgery under local anaesthesia and reduces the incidence of negative penile explorations.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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Ethical approval

There was no IRB approval for this case report. The patients have given written informed consent for this case report.

Consent

Written informed consent was obtained from the patients for publication of this case report and accompanying images. Copies of the written consent are available for review by the Editor in Chief of this journal on request.

Author contribution

Dean Wong: did most of the data collection, analysing the data, wrote the first draft of the paper, approving the final manuscript.

Belinda Morrison: helped conceptualise the paper, data interpretation, writing the paper, approving the final manuscript.

Richard Mayhew: helped conceptualise the study, helped with data collection, writing the paper and approving the final manuscript.

Gareth Reid: helped conceptualise the study, data collection, writing the paper and approving the final manuscript.

William Aiken: first conceptualised the study, analysed the data, helped to write the paper and approved the final manuscript.

Research registry

This was not a first in man study.

Guarantor

William Derval Aiken.

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